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ABSTRACT

This article examines the evaluative aspects of Ivory Coast's educational television system. It is less an analysis of evaluation results than a description of the types of evaluation data being generated. It discusses the development of the evaluation component of the project in terms of: (1) types of evaluation to be undertaken, (2) identity of funding agents, (3) organization of evaluation activities, (4) purpose and use of evaluation results, and (5) role of Ivorian nationals. Field teacher opinions and attitudes, statistical information relating to television teachers, and cost factors are also considered. A summary in Spanish of Parts I and II of the Ivory Coast educational television article is included. (Author/STS)

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TECHNOLOGY AND EDUCATIONAL REFORM: THE CASE OF IVORY COAST (PART II)

by

Stephen H. Grant

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TECHNOLOGY AND EDUCATIONAL REFORM: THE CASE OF IVORY COAST (PART II)

By STEPHEN H. GRANT*

(Stephen Grant concludes his article on the Ivory Coast educational television project with a review of the work being done in the area of project evaluation.)

In the early ETV project planning documents, evaluation was accepted as a necessary component. However, when the first programs were broadcast to Ivory Coast elementary schools in 1971 several dimensions of an evaluation component had yet to be resolved. These included: the types of evaluation to be undertaken, the identity of funding agents, the organization of evaluation activities, the purpose and use of evaluation results, and the role of Ivorian nationals. This article will address the development of the evaluation sector along these dimensions and will subsequently review some evaluation projects now under way. However, for reasons which will become evident in the text, this article will not treat systematic success or failure of the project to date nor explicit lessons inherent in the evaluation results which could be applied to other countries.

One of the first decisions made by the Ivorian ETV Ministry on the type of evaluation to undertake was the creation of a "feedback" service within the Production Center in Bouaké. The purpose was to report back to the producers on how their programs had been received in the schools and to suggest how future programs might be improved. This unit was staffed mainly by French government-paid graduate students in the fields of sociology, psychology, and education who were getting credit for military service by spending eighteen months in Ivory Coast as technical assistants. In the first year two Ivorian elementary school teachers joined them as counterparts; by 1974 this team numbered fifteen, with a majority being Ivorians. Their tasks are the following: to work with producers to define program objectives; to train a field staff to perform classroom observation; to develop classroom observation forms for teachers and pedagogical advisors; to analyze these feedback forms; to produce

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TECNOLOGÍA Y REFORMA EDUCATIVA: EL CASO DE LA COSTA DE MARFIL*

En el Africa Oeste, la Costa de Marfil es conocida por un clima político extraordinariamente estable y un desarrollo económico notablemente exitoso. Sin embargo, se suele notar que la Costa de Marfil provee más a las necesidades de una élite rica que a las de los pobres. Cuando la televisión educativa fue introducida a un nivel nacional en 1971, los críticos señalaron este hecho como "otro lujo importado."

Este artículo no es una denigración ni una adhesión del uso de la tecnología educativa. Mejor pretende investigar el desarrollo histórico del programa de televisión educativa y mostrar como el receptor de televisión, visto como un instrumento de desarrollo, es parte de un enfoque completamente nuevo a la educación formal — e informal — en esta ex-colonia francés.

Antecedentes y Planificación Inicial del Proyecto

A fines del decado de los 1960s, la Costa de Marfil hizo un inventorio de su situación educacional. Las realidades deprimentes — de ningún modo un monopolio marfilense — incluían una grande proporción de deserción escolar y de alumnos repetiendo el grado; falta de suficientes profesores de aula y un entrenamiento de maestros de baja calidad; programas de estudio demasiadamente memorísticos; y discrepancias regionales en niveles de matrícula escolar.

El país cercano de Niger era el sitio de un experimento de televisión educativa, financiado por Francia, que estaba produciendo sus resultados iniciales, los cuales eran favorables. En la Costa de Marfil, la red de estaciones de televisión y su infra-estructura técnica eran más conducentes a un sistema nacional de TVE que aquellos de Niger. El gobierno de Francia y la Unesco fueron prontamente solicitados por la Costa de Marfil para asistir en la planificación de innovaciones educacionales. Se produjo una serie de documentos de planificación, y cuando las primeras transmisiones se les enviaron a los estudiantes de primer año y a maestros en-servicio, ya se habían iniciado planes para una programación de televisión a la audiencia fuera del aula orientada hacia adultos en zonas rurales. Hacia 1977, se espera que el ciclo completo de instrucción primaria se llevará a cabo por televisión, con la ayuda de un maestro capacitado para usar una modalidad nueva.

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**translated by Susan Hostetler*

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feedback reports for the whole ETV project staff with precise suggestions for the producers; and to prepare the scripts for teacher in-service TV programming. The feedback team has also developed reading tests for second graders and piloted other tests.

The feedback unit is designed to produce short-term assessments for program producers. It plays an ***internal*** regulatory function, the primary aim of which is to examine the reaction of teachers and pupils in the classroom, and to point out such items as unmastered concepts, progressions in curriculum content judged too fast, difficulty in pupil adaptation to group work, unavailable pedagogical material. Producers use the feedback information for adjusting their future programs, for the remakes of past programs for future years, and for the creation of review programs on a weekly basis. All feedback reports are distributed on a limited basis to ETV project staff only.

While the ***internal*** evaluation unit based in the project center, Bouaké, was helpful for the production process, the ETV Secretary four hundred kilometers away in the Capital desired a more global evaluation in other fields besides exclusively classroom behavior, with a direct input into solving some of the problems at his level. In 1972 an ***external*** evaluation unit was created. Its function was to help the ETV Secretary in planning and improving the ETV project in its organizational structure, its educational results, its technical quality, and its cost-effectiveness. To insure objectivity countries not involved in ETV project operations were solicited to send external evaluators. Current donors include the Belgian, United States, and West German governments. The Ivory Coast government contributes to this international effort by furnishing office space, support staff, and a recurrent budget. The unit coordinator's position is funded by Ivory Coast under a loan agreement with the World Bank. The unit is headquartered in the Capital with a branch office in Bouaké, the ETV project center. It constitutes a consultative as well as a research entity, attached directly to the ETV Secretary's cabinet, providing basically long-term evaluation in many areas outside of the "strictly production" sector.

Due to the nature of funding from their donor countries, the external evaluation personnel are predominantly foreigners. Even the unit coordinator's post is currently held by an Englishman, but an Ivorian is scheduled to take over later in 1975. The expatriates working in evaluation have an affiliation to a consulting firm or academic institution whose chief expertise lies in aiding developing countries. All have previous experience in evaluation and educational technology. Furthermore they bring institutional support from their countries in the form of back-up missions, a materials and resource center, additional computer facilities including programmed packages for data analysis, and a commitment to Ivorian staff training.

The major part of this article will be devoted to a review of what ***external*** evaluation activities are under way or have been performed. These activities were selected in the first place according to a very general "charter" which marked the evaluation unit's creation and contains lists of priority areas to be evaluated. Each national group among the external donors has adopted more or less distinct areas: technical evaluation, out-of-school evaluation, in-ETV-school evaluation, management evaluation, economic evaluation. Each donor agency submits a proposal to the ETV Secretary on how it intends to perform its part of the research. Topics may be of a long-range nature, such as pupil achievement or rural adult behavior change, or of shorter range, as an analysis of two classes in a teacher training school or on the program production process.

The culmination of an evaluation study is normally the submission of a written report, accompanied by an oral presentation to the ETV Secretary's office. The reports contain a declaration of the study's objectives, the data collection procedures, data analysis, major findings, and recommendations. All reports with the exception of one have been written in French. The Secretary has adopted the prerogative of sole distributor of the reports. To date he has confined one to his cabinet, distributed some to Ivory Coast ETV staff only, and allowed others to be disseminated to interested outside parties.

In keeping with the Ivory Coast's current stance of reserving the right to disseminate the actual data, the rest of this article is less an analysis of the results to date than a description of what sorts of evaluation data are being generated. The reports will be presented individually, followed by a final paragraph outlining the current plan for future evaluation studies. Since evaluation has been going on for only three years, some of the questions, such as "what will happen when a pupil finishes the elementary school cycle with TV as a major component?", must wait until 1978 for the first answers. Several countries — such as Tunisia, Ghana, Indonesia — about to engage in educational reform through communication technologies have sent missions to discover for themselves how the ETV experience is working in Ivory Coast. Readers are encouraged to direct further inquiry to the Secrétaire d'Etat chargé de l'enseignement primaire et de la télévision éducative, B.P.V. 40, Abidjan, Ivory Coast.

Teacher Opinions and Attitudes

During the first year of ETV broadcasts, 1971-72, a research team planned, pre-tested, and field tested an attitude survey among elementary school teachers, administrators, advisors, and some parents. A random sample of eighty-five first grade ETV teachers (19% of the total number) was stratified according to enrollment rates in the region and a rural/urban index. A team of seven researchers travelled eight thousand kilometers handing out and explaining a nine-page questionnaire, and picking it up the same or following day. Purposes of the questionnaire were multiple: to accustom field teachers to the mechanics of filling out information and opinion forms; to capture the initial reactions of professional field personnel concerning the ETV program; to raise field staff

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ESTRUCTURA DEL PROGRAMA DE TELEVISIÓN EDUCATIVA

En la Costa de Marfil, el Ministerio de Educación estableció una oficina especial para administrar el proyecto de TVE, entitulada la Secretaria de Televisión Educativa. Este oficina consiste de funcionarios marfilenses (por la mayor parte, ex-maestros y administradores de escuela, como el que la dirige), y asesores extranjeros, los cuales representan los tres contribuidores principales al proyecto: el gobierno francés, la Unesco, y el gobierno de Canadá. También bajo la supervisión de la Secretaria, y situados en la Capital, había cuatro servicios técnicos y un elemento de programación: un centro de documentación, un equipo para el procesamiento de datos, un equipo de evaluación externa, un servicio de mantenimiento, y un programa de educación fuera de la escuela, es decir, "educación no-formal." Los últimos dos merecen comentario adicional.

1. Servicio de Mantenimiento

Un grupo de mantenimiento viajaba rutinariamente por todo el país para inspeccionar y reparar los 3,000 receptores, los cuales habían sido especialmente adaptados para el uso en el trópico (cada uno a un costo de $300). Más de dos tercios de los receptores están en zonas sin electricidad. Estos receptores operan por medio de baterías (pilas) que duran aproximadamente 18 meses. La operación del mantenimiento y la compra de baterías constituyen la mayor parte (en total más de un tercio) del presupuesto anual del proyecto de TVE.

2. Programa de Educación No-Formal

El programa de educación fuera de la escuela (es decir, "no-formal") opera dentro del programa de TVE nacional aunque incorpora numerosos contactos extra-ministeriales. Un comite de coordinación fue formado por veinte Ministerios y agencias de desarrollo especialmente interesados en el desarrollo rural, con el Ministerio de Planificación siendo la autoridad nominal y el Ministerio de Televisión Educativa tomando la iniciativa organizacional. Aquellos con un mensaje particular para transmitir se reunen con los técnicos; juntos, producen programas sobre temas como nutrición de niños, el éxodo rural, cooperativas, agronomía, los peligros de agua desaseada, una neuva política para el café, o el funcionamiento de la TVE. Los programas son televisados por la noche sobre la cadena nacional y llegan a casas particulares asi como a las 1,000 escuelas que en 1974 se encuentran con receptores. En muchas de estas escuelas, los maestros juegan el papel de *animateurs* para las sesiones nocturnas: recibiendo a los adultos en el aula, presentándoles el programa, traduciendo el diálogo, y dirigiendo las discusiones. En preparación para estas tareas algunos maestros han sido llamados al centro de TVE para entrenamiento de *animateur*, y otros se han graduado de uno de las nuevas escuelas normales que incluyen *animation* en su curso de estudios. Además, introducciones escritas a los programas de educación para adultos e instrucciones para los grupos de discusión son publicadas regularmente en un periódico semanal.

3. Servicios Fuera de la Capital

La programación principal y todo el entrenamiento de maestros se efectúan en Bouaké, 400 kilometros al norte de Abidjan (la Capital). Allá están situados el programa de entrenamiento de maestros pre-servicio y en-servicio, la prensa y el equipo para la producción de materiales escritos, en adición al personal que trabaja en la planta de estudio y la producción de TVE. El Jefe del Centro de TVE en Bouaké tiene bajo su supervisión tres servicios: un departmento audio-visual, un servicio de "retro-información," y un *polythèque* (biblioteca).

4. Servicio de Retro-Información

El servicio de retro-información provee información a corto plazo al equipo de producción de programas estudiantiles, y a los autoridades acerca el entrenamiento de maestros en-servicio. Sus actividades combinan observación sistemática de clases y exámenes periódicos para medir los alcances de los estudiantes en Bouaké y sus vecinidades. También organizan retro-información del campo por medio de la utilización de un grupo de 50 consultores pedagógicos apostados por todo el país como observadores de la televisión en el aula a ciertas horas designadas. Mientras que el equipo de evaluación externa se envolucra más en la evaluación sumativa y a largo plazo al nivel de proyecto total y es responsable a las agencias financieras externas asi como a la Costa de Marfil, el servicio de evaluación interna hace una función más formativa de colección rápida de retro-información para mejorar aprendizaje y enseñanza, y es directamente responsable al centro de operación de programas, Bouaké.

5. Entrenamiento de Maestros

Las escuelas normales fueron modificadas y ampliadas con el comienzo del programa de TVE. Los estudiantes son seleccionados después de haber completado cuatro años de escuela secondaria. Su plan de estudios nuevo incluye entrenamiento audio-visual, teoría dinámica de grupos, ejercicios en francés en el laboratorio de lenguajes, una iniciación a conceptos científicos, y matemáticas modernas. Los estudios de TV y las facilidades accesorias para la producción de programas están situados cerca de dos escuelas normales modelas en Bouaké, asi ofreciendo a los estudiantes la ventaja de familiarse con el proceso de producción. Todos los programas son producidos en la Costa de Marfil, en película o videotape. Documentos escritos sobre los temas principales — el idioma francés, matemáticas modernas, y actividades de expresión (corporal, artística, y musical) — son preparados y enviados a todos los maestros para ayudar en la preparación y seguimiento de lecciones

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morale by bringing a direct personal contact from the project headquarters; to begin the training of Ivorian researchers; and to experiment with the complete cycle of field research: identification of a problem, development of a research design, testing of instruments, data collection, data analysis and interpretation.

The results revealed predominant teacher attitudes concerning the functioning of the ETV operation and the behavior of pupils. For example, most TV teachers believed that they could adequately conduct a class in case of a breakdown in TV reception with the help of the elaborate written documents which have been developed as supplementary material. In-service TV instruction was judged highly useful in presenting new subject matter to the teachers and in helping them prepare their lessons. Teachers visibly welcomed the opportunity to discuss the merits and problems of TV teaching and they solicited closer supervision and guidance in the future. There was a consensus that six months of ETV had produced a new pupil profile: proficiency in modern math and skills of expression *(éducation de base)*, and deficiency in the traditional subjects of recitation, writing, reading, arithmetic. TV pupils were judged unanimously as being superior in oral French expression to pupils in traditional classes. Despite certain indicators of resistance from some opinion sources (notably school principals, elementary school inspectors, and parents), a general attitude of confidence in and support for the ETV system was discovered.

Cognitive and Psychomotor Skill Levels of First Graders

Research is being carried out to determine pupil performance in ETV schools, in "traditional" classrooms in Ivory Coast, and in schools elsewhere. The four areas under examination are: space orientation (surface features and geometric space), time organization (rhythm, picture classification), mathematical logic development (classification, numbers, series recognition), and code learning.

The testing theory has been inspired by the Swiss child psychologist Piaget. The tests themselves are constructed after an analysis of the content of the printed materials used by Ivorian pupils in their *éducation de base* course of study and after an analysis of the children's workbook notations and free drawings. A team of Ivorian observers has been trained to administer the tests under the direction of foreign consultants. The results of the first two years of testing will be released by the ETV project authorities in early 1975. Follow-up studies will be conducted during the 1974-75 school year.

Teacher/Pupil Interaction Analysis

The interaction system of de Landsheere and Bayer of the Experimental Pedagogy Laboratory at the University of Liège in Belgium is being used to record and analyze verbal communication stimuli from teachers to pupils in elementary TV classes. A team of Ivorian elementary school advisors take tape recorders to a sample of rural and urban schools. During mathematics and French classes and during activities of expression, they record any five-minute sequence simultaneously writing down as much of the teacher's verbal behavior as is possible. Afterwards each element of the teacher's spoken interventions is assigned a direction (to whom did he speak?) and a role. The roles are the following: organization, exposition, suggestion, elaboration, personalization, positive and negative affectivity. Data are subsequently analyzed by computer to produce an overall trend of teaching style. This information will be compared with those verbal teacher behaviors exhibited in other settings, as in traditional schools and in other countries.

Data from the first two years of using this instrument on an experimental scale, including some comparative testing in "traditional" schools, will be distributed early in 1975. Further studies using a nationwide sample will be undertaken in 1974-1975.

Student Characteristics and Participatory Behavior at the ETV Teacher Training School

This research report suggests first a definition of student participation and a methodology for its measurement. Then it produces a profile of the teacher training students at the Bouaké *école normale d'instituteurs* in 1970-71, in particular their demographic, attitudinal, and experiential characteristics. A final aspect of the report is exploratory: does there seem to be any particular relationship between these characteristics and the degree of a student's participation in his program? Do the strong participators have anything common?

The total population of one hundred and twenty-five students contributed sentence-completion items describing the behavior or attitudes of the active participant in their training program, e.g. "tries to understand a friend's idea before judging it," "proposes a solution to a problem that advances the group work." Students used this instrument to rate each other, with each student marking the name of the student in his group who participated the most in each of the fifty criteria. A statistical test was run to establish the reliability of the data. The reliability coefficient was not exceedingly high (.75), but high enough to give some confidence in the results.

When the peer ratings on student participation were made, students gave information for the next part of the research study: their age, sex, home background, job aspirations, attitudes toward school and towards teaching, and many other things. This information was tabulated and compared with the participation scores.

All the findings are based on participation levels as perceived by peer group members at the model school and are relevant only to the population at that school. High participation is associated with (and low participation is *not* associated with) the following variables: a higher age category, a low number of years spent in primary school, a secondary school career beyond third form, previous professional training, a family where the father works in agriculture, coming from a non-Akan tribal family, a willingness to live in a village (rather than an urban setting), membership in a non-school club, strong religious convictions, a high sensitivity to the opinion of

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televisadas. También se re-entrenan maestros por medio de la televisión: programas diarios juntos con una sesión semanal por la tarde presentan las aceptadas instrucciones pedagógicas y sugerencias para actividades en el aula. Radiodifusiones sobre la pedagogía llegan a la pequeña parte del país donde todavía no hay televisión. Artículos semanales de la prensa también informan a los maestros sobre las ideas pedagógicas corrientes.

Evolución de Programa

Durante los años 1973-74 las transmisiones entraron en su tercer año de operación, llegando a aproximadamente 2,500 maestros y a más de 100,000 estudiantes. Se añadirá un grado cada año hasta que el entero ciclo primario de seis años esté incluido en la reforma. La Costa de Marfil ha prometido llegar a una matrícula de 100% antes de 1986; la proporción actual es 55%.

Actualmente hay cuatro diversas categorías de maestros, basadas en sus años de preparación y su ejecución en el examen pedagógico. La Costa de Marfil ha decidido no seguir el ejemplo de la TVE de Niger, que entrena monitores para ser maestros de TVE. La Costa de Marfil poco a poco está eliminando los dos niveles más bajos de maestros calificados a favor del maestro más costoso pero que ha recibido entrenamiento de larga duración. El sueldo de los maestros está subiendo debido al aumento nacional de recompensas; en adición, la decisión de elevar el nivel y requisitos de calificación para maestros tendrá un impacto importante sobre el precio agregado de sueldos pagados a los maestros.

De los 400 empleados del programa de TVE, aproximadamente un tercio del personal profesional son asistentes técnicos extranjeros. Todos los directores de los departamentos principales son marfilenses, y generalmente tienen consultores franceses. Contrapartes marfilenses son asignadas a todos los sectores de trabajo de producción, entrenamiento de maestros, redacción de materiales escritos, retro-información, etc. Los marfilenses son casi exclusivamente ex-maestros que han sido promovidos dentro de su ramo de servicio como funcionario del estado. Aunque existe un plan general para nacionalización del proyecto, durante sus primeras etapas el proceso ha sido un poco lento; el entrenamiento y empleo de personal nacional no es adecuado, y el gobierno de la Costa de Marfil está pidiendo extensiones de asistencia financiera extranjera a niveles más amplios que previamente anticipado.

Evaluación del Proyecto de TVE

Cuando los primeros programas fueron transmitidos en 1971, aún quedaban varias dimensiones de un programa de evaluación para resolver: por ejemplo, qué se iban a desarrollar, el objeto y el uso de los resultados de la evaluación, la identificación de fuentes financieras. Después de haberse organizado un equipo de "retro-información" para la evaluación pedagógica a corto plazo, el Secretario de TVE solicitó asistencia para una evaluación a largo plazo, la cual enfatizaría la administración de pruebas de habilidad a los estudiantes y atención a los aspectos relacionados con la administración, el análisis de costos, la eficiencia técnica, y el programa enfocando la población estudiantil en el campo "no-formal" o fuera del aula. Para este propósito, un equipo de evaluación externa fue creado en 1972, financiado primero por la Unesco y después por los gobiernos de Bélgica, los Estados Unidos y Alemania Oeste, con la Costa de Marfil contribuyendo sustancialmente en personal, espacio para oficinas, y gastos recurrientes.

La culminación de un estudio evaluativo normalmente resulta en la submisión de un reporte escrito, acompañado por una presentación oral a la oficina del Secretario de TVE, de la cual la identidad de evaluación depende directamente. Los reportes contienen una declaración de los objetivos del estudio, los procedimientos en coleccionar datos, análisis de datos, resultados principales y recomendaciones para el mejoramiento del proyecto. Todos los reportes, sólo uno, han sido escritos en francés. El Secretario de TVE ha adoptado el prerrogativo de distribución exclusiva de los reportes. Por eso, muchos de los reportes aún no son accesibles a agencias o personas externas. En conformidad con la posición actual de la Costa de Marfil de reservar el derecho de diseminar los datos existentes, el resto de este artículo es más bien una descripción de los tipos de datos de evaluación que se producen que un análisis de los resultados hasta la fecha. Los reportes han sido presentados individualmente, seguidos por un párafo final delineando el plan corriente para los futuros estudios de evaluación.

Los Reportes

Uno de los primeros estudios enfocó una encuesta de las opiniones y actitudes de una muestra casual de 85 maestros de TVE, la cual representa el 19% de todos los maestros utilizando la TVE. Partidas del cuestionario cubren actitudes de maestros hacia la experiencia de enseñanza con TVE y sus opiniones acerca el comportamiento escolar de estudiantes. Generalmente, los maestros apoyan el programa de TVE. Se sienten preparados para observar el programa de TVE por primera vez con los estudiantes, debido a la telvisión en-servicio y materiales escritas que les han preparado. Sin embargo, solicitan supervisión personal aumentada. Acerca el tema del comportamiento escolar de estudiantes, los maestros encuentran que el estudiante en el aula con TVE es curioso y locuaz, con un buen entendimiento de matemáticas modernas y del idioma francés, pero que le faltan ciertos habilidades "tradicionales" correspondientes a estudiantes de la misma edad: recitación, aritmético, escritura.

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others regarding professional career choice, and a strong perceived level of personal contribution to the ETV project. The two major implications of these conclusions are that both adherence to certain traditional values and maturity (age and professional experience) appear to be related to high participatory behavior at the model school.

The Cost of ETV in Ivory Coast

This initial cost analysis was conducted after the first one and one-half years of operation of the ETV project. Cost data were compiled by referring to cost estimates in original project planning documents, by consulting all available Ministry and donor agency budgets, and by conducting personal interviews with Ministry and agency officials.

A first section presents cost figures distributed along the following categories: administration, program production, transmission, reception and printed support materials. (Teacher training and program development as it affects teacher qualifications and salaries have not been addressed in the present study.) These categories are further broken down into components. For example, reception equipment would be composed of initial installation of TV receivers, stands, antennas, masts, and replacement of TV receivers, antennas, and masts. Estimates of the component costs are projected for each year from 1969 to 1991. Future cost projections are based on enrollment increases as they were planned at the time the research was carried out. The first section also breaks down funding by major donor sources: Ivory Coast, France, Canada, United Nations Development Program, and World Bank. Tables indicate the financial burden which will accrue to Ivory Coast as external aid decreases along a planned schedule.

A second section computes average and marginal costs for the ETV project. Definitions and examples of these terms are included in the analysis. Average annual unit cost figures are estimated as between 4000 and 4450 CFA francs ($16 and $18). These figures do not include teacher salaries. In conclusion, the cost analysts argue that ETV cost in Ivory Coast is already substantially higher (costing an approximate $8,000,000 annually in 1973 and 1974) than the planning documents had calculated and in addition its average costs are higher than for most ETV projects.

The Progression of TV Teachers 1971-74

Two successive research efforts have begun the systematic collection of statistical data on TV teachers: their number, their training, their salary, and their progression from year to year. The calculations are based on nominative data furnished by elementary school inspectors on a special questionnaire for the evaluation unit. In ETV year one (1971-72) there were 457 first grade teachers. In year three (1974-74) there were 1,111 first grade teachers, 845 second grade teachers, and 451 third grade teachers, totaling over 2,400. In year three, 950 schools (approximately one-half of the total number) were equipped with TV receivers.

In year one, seventy-three percent of all TV teachers had attended special TV teacher training schools; two years later that figure had grown to seventy-six percent. Unit cost figures for three-year training reached 1,300,000 CFA francs ($5,200) at the *école normale d'instituteurs*. A global training cost figure for the one-year institutions was 400,000 CFA francs ($1,600).

During ETV's year one, eighty-six percent of the first TV teachers had followed their same students to second grade, which was the official intention. In the third year this figure dropped to seventy-three percent. Many of the TV teachers who did not accompany their own pupils to the higher grade, however, took over another TV class and were not lost to the system.

Finally, TV teacher salaries have increased at a rate of approximately thirteen percent in two years, from an average monthly base of 39.571 CFA francs ($160) in 1971 to 44.860 CFA francs ($180) in 1974.

Program Production at the ETV Center

Information for this internal report was gained by a series of interviews carried out in 1973 with ETV project directors, with ETV film directors, producers, cameramen, and technicians; by observation of program planning meetings and shooting sessions; and by consultation of all relevant planning documents and operation reports.

The first part of the report is composed of a detailed sequential diagram of the production cycle: from the time a scenario is approved, to the preparation of the shooting, to the shooting itself in the studio or outside, to simultaneous support activities, to the final product.

The report also presents figures on the volume of work produced according to three criteria: production technique (film or video tape), production audience (pupils, teachers, adults), and amount of time invested in the preparation of one twenty-minute program. During 1972-73 a total of 240 hours of programming was completed; 130 hours of film and 110 hours of video tape.

The film medium was used in the following manner:

(film) 110 hours — pupil programs
20 hours — in-service teacher training
1 hour — adult education

In the same year the video tape usage was the following:

(video tape) 55 hours — in-service workshops at ETV project center
10 hours — pupil program presentation (live)
45 hours — in-service teacher training

(Concluded on page 10)

(Continuación de página 5)

EL CASO DE LA COSTA DE MARFIL

Una segunda obra observa la escuela normal modela en la planta de estudios de la TVE. Un perfil de 125 estudiantes se desarrolla durante el programa de entrenamiento por medio de una observación de la participación estudiantil colectiva en el programa. Niveles de participación se establecen por medio de estimaciones por pares y entonces se refieren a varios variables indicando ciertas de las características demográficas, actitudinales y experienciales de los estudiantes. Las implicaciones principales del estudio son que adhesión a ciertos valores tradicionales, y madurez (edad y experiencia profesional) parecen covariar con un alto nivel de participación en la escuela modela.

Un tercer estudio ha compilado los costos del establecimiento de la TVE en la Costa de Marfil, separándolos por las principales agencias de financiamiento y por categorías: administración, producción de programas, transmisión, recepción, y materiales escritos relacionados. Estimaciones de los costos han sido proyectados por cada año, desde 1969 a 1991. Además, costos medianos y marginales para el proyecto de TVE se han calculado. Los autores hacen notar que el costo de TVE en la Costa de Marfil es sustancialmente más alto que se habiá calculado en los documentos de planificación y que además los costos medianos eran más altos que los del mayor número de proyectos de TVE.

Un cuarto estudio (publicado cada año) describe la situación del maestro utilizando la TVE: números, clases enseñadas, entrenamiento, sueldo, y progreso anual. En 1971-72, había 457 maestros utilizando la TVE en el primer grado. En 1973-74, este número aumentó a 1,111 maestros con TVE en el primer grado, 845 en el segundo grado, y 451 en el tercer grado. Esto formó un total de 2,425 maestros utilizando TVE. Más de la mitad del número total de escuelas en la Costa de Marfil actualmente tienen receptores de televisión. Aproximadamente tres cuartos de los maestros con TVE han sido entrenados en una de las instituciones especiales de adiestramiento magisterial que favorecen el uso de medios audio-visuales y otras técnicas modernas. Por lo regular, tres maestros de cada cuatro continúan enseñando a sus estudiantes según éstos son promovidos de grado a grado. Finalmente, el sueldo de los maestros utilizando TVE ha aumentado en una proporción de aproximadamente 13% en dos años, de un baso mediano mensual de 39.571 CFA francs en 1971 a 44.860 en 1974.

En un quinto reporte se informa sobre el ciclo de producción de programas, desde su concepción hasta el producto final. Brevemente, se da a conocer el proceso de producción que sigue una secuencia bien detallada. El reporte presenta cifras sobre el volumen de trabajo. Durante 1972-73, por ejemplo, un total de 240 horas de programación fue completado usando películas o videotape. Aproximadamente una semana de preparación fue provisto por un equipo de productor/director para una transmisión de veinte minutos. El resto del reporte identifica problemas concretos observados durante el proceso de producción, apunta consecuencias visibles, estima causas probables, y sugiere posibles maneras para resolver las dificultades encontradas.

El Plan Corriente

Investigaciones corrientes en evaluación se llevan a cabo simultaneamente en un número de áreas. En el área técnica, se circula un reporte de evaluación al personal del Centro de TVE que traza el plan del ciclo de producción seguido, asesa el volumen de trabajo emprendido, y identifica problemas concretos observados durante el proceso de producción. En el área económica, se desarrolla un modelo utilizando la computadora que mide la matrícula de estudiantes y es diseñado para asistir en la proyección de los costos para la expansíon de la TVE según varias hipótesis de desarrollo programático. La evaluación de la educación no-formal de adultos está determinando las necesidades de tal programa, trazando el desarrollo organizacional de la administración de la educación para adultos, y estudiando el impacto de los programas en los centros receptivos. Finalmente, se efectúa una evaluación de la educación primaria en varias áreas: desarrollo cognoscitivo, interacción de maestros y alumnos, actitudes de maestros, y destrezas de los estudiantes en el idioma francés y en matemáticas modernas.

Instructional Technology Report, published bimonthly, is the official newsletter of the Information Center on Instructional Technology. The Center serves as an international clearinghouse for materials and information on important developments in the use of technology for improving education around the world. The Center is operated by the Academy for Educational Development, a private non-profit organization, and is supported by the Bureau for Technical Assistance of the U.S. Agency for International Development.

ICIT HOSTS SEMINAR FOR TEACHERS' UNION OFFICIALS FROM FOURTEEN COUNTRIES

By Randall H. Casey

Sixteen teachers who are leaders of teachers' organizations in fourteen countries were participants in a 4-day Information Center seminar (January 21-24, 1975) on educational technology before they travelled around the United States to learn about teachers' union activities in this country.

The seminar represented the only concentrated exposure to educational affairs in this country for the group because the 30-day program was aimed primarily at teachers' union matters. The participants came from countries of Africa, Asia, Europe and Latin America; English, German, Japanese and Spanish were used by the group as languages of communication.

Funding this program were the Office of Labor Affairs of the Agency for International Development and the Bureau of Educational and Cultural Affairs of the Department of State. The Bureau of International Labor Affairs of the Labor Department prepared the group's program and the American Federation of Teachers served as the group's host.

The aim of the seminar was to give these participants a program that emphasized educational technology as a process and not as a collection and utilization of hardware artifacts, such as radio and television sets, film or slide projectors. At the same time the staff wanted to show that this process of improving teaching and learning can take place by various media and approaches. Finally, it was the Center's intent to focus on this process as it affects the role and attitudes of the teacher.

The agenda included two case studies on the role of educational television in formal schooling in El Salvador and Ivory Coast. One morning was spent on a presentation of an innovative social science curriculum. The participants heard about international experiences in upgrading teachers and what has been the experience in this country with educational media efforts. One session was spent hearing about non-formal education activities in Tanzania and Alaska and another was devoted to site visits in the Washington area. These sites included a computer program that shows population projections and what affect they will have on education factors like enrollments, costs, etc., and on education planners; computer information retrieval system in education technology; a high school television class where the students do all the programming, producing and airing; a bilingual, team teaching school where English-speaking and Spanish-speaking students are taught subject matter in both languages; and an open classroom elementary school.

Highlights of the Sessions are Presented in the Following Summaries:

Henry T. Ingle of the Information Center staff, who spent 2 years in residence in El Salvador from late 1971 to early 1973 and was involved in the evaluation of the TV project, emphasized the importance of the teacher's role in the use of ETV in El Salvador. Classroom teachers in El Salvador received a full nine months of retraining prior to using TV. While retraining, the teachers were on full salary with paid replacements in their classrooms. This retraining of teachers, coupled with the other changes in the educational system — new curriculum, new testing and evaluation procedures, printed instructional materials for the teachers and students to complement the tele-lessons — account in a significant way for the more effective use of ETV in the classroom. This underscores the fact that television used within the context of educational technology cannot strictly be viewed as an appendage to the old system; rather, it must become part of an integrated change. The broadcast media alone will not do it. Teachers are important.

El Salvador is also unique, according to Ingle, in that the ETV production teams and studio crews developing the tele-lessons previously had all been classroom teachers.

Stephen Grant of the ICIT staff, who worked in the Ivory Coast for one year as researcher in a teacher training school, one year on the faculty of this school and two years as field evaluator to the ETV program on an AID-AED contract, spoke on how the ETV program in the Ivory Coast affects the classroom teacher's life. On the one hand the teacher has to give more of his time reading documents, making preparation, listening to radio and television to upgrade his teaching, returning to school at night to conduct adult education classes by TV, filling out feedback forms for the Ministry and attending workshops during vacation time for professional upgrading. On the other hand the teacher receives a new curriculum to follow (which means the initiation of most content comes from the TV studio) and is given supplementary print material, in-service multimedia pedagogical support, workshops and upgrading of his teacher status. Grant reported that this reform is attempting to make education more relevant to the needs of the country and to make the teacher's role essential to the process of national development.

Frances Link of the Curriculum Development Associates presented the social sciences curriculum called *Man: A Course of Study*. Most curricula, according to Ms. Link, are really just a collection of materials — not like *Man* which has a logical framework of organizing ideas that allows a coherent presentation of material. Children are given the chance, with this curriculum, to cope with the human condition because three basic questions recur throughout the course: What makes man human? How did he get that way? How can he be more so? Many skills are developed by children with this curriculum: methods of observation, data collection in their own environment, hypothesizing, problem-finding and problem-solving. Finally, Ms. Link said that this curriculum is available to school systems only when they agree to first train teachers to use it.

Frank H. Klassen, the Assistant Director of the American Association of Colleges for Teacher Education and Executive Director of the Association's International Council on Education for Teacher Education, touched on two areas on how to upgrade teachers. He noted incentives as one way to improve the quality of teaching such as earning academic credits and/or offering financial increments. A second area of improving teaching is based on the notion of performance-based teacher education. This practice encourages the teacher in training to state his teaching goals. With this system a teacher learns the areas which he needs to strengthen. Finally, Klassen wants to see teacher associations help define what good teaching is and what educational goals should be set. He feels that up to now the universities have monopolized this role.

Dr. Harold Wigren of the National Education Association spoke about the use of instructional television in the U.S.A. and said that ITV has failed in this country essentially because teachers have not been involved in the program planning. "They did not share — hence they did not care." Another difficulty according to Wigren is that media people are primarily interested in the broadcasting of programs and not in how they are received and utilized in the classroom: "mere exposure to a television lesson doesn't guarantee learning." Wigren feels that more teacher involvement in the planning and use of TV will result in more successful learning. There also should be a greater flexibility in program scheduling and formats so that schools will want to use ITV in their curricula. The video cassette format was to be preferred because in this way teachers can use VTR equipment to show the lessons at times more convenient to their own schedules.

Selma Dublin of the ICIT staff had just returned from Europe and East Africa and gave a short talk on nonformal education in Tanzania. She reported on that country's use of radio, simple print materials and trained group leaders for supplying basic information on various aspects of nation building. A fundamental tenet of the Tanzanian approach is that teachers should take the lead in developing programs for life-long education, and therefore techniques for teaching adults as well as children should be included in every teacher-training curriculum. In Tanzania, for example, the principal of the village primary school is also the adult education officer for the village.

Also during the nonformal education session Randall Casey of the ICIT staff talked about the process of the Skyriver project in Alaska which involves an Eskimo community collectively discussing individual, then community problems, agreeing on what the village's most basic problem is, and finally petitioning the government to help them. This process is strengthened and speeded up by the use of video tape and film. These visual media are used to communicate with other villages to determine whether the problem is mutual and with government decision-makers to get help in solving their problem. Video tape and film in Skyriver were successfully used because the villagers controlled the media in terms of how, when and where they were used, what language was spoken, and how the message was presented (which included the power of editing). As a result of this project the Eskimos helped change the state's education and housing policies.

The participants in the seminar were: S.G. Nimako, Ghana; David Mulindi, Kenya; M.O. Bamgbose and Chief Omoz Oarhe, Nigeria; W.D.F. Rindorindo, Indonesia; Gurnam Singh, Malaysia; Purificacion V. Quisumbing and Santos Pascual, Philippines; Jaime Nava Calderon, Bolivia; Jose Ernesto Fuentes Rivera and Sergio Nuñez Arguedas, Costa Rica; Else Agnette Vinther Byrith, Denmark; Ernst Reuter, West Germany; Horst Lattinger, Austria; Keiichi Kaneko, Japan; Cristina-Arias Pastore, Paraguay; and Alberto Diaz Heredia, Venezuela.

At the Information Center's October 1974 planning and evaluation meeting with its funders, USAID, the staff met with USAID personnel, some of whom learned of the Center's services for the first time and became interested in working with ICIT at a later date. This 4-day seminar is an indirect result of that meeting.

QUE ES LA UNIVERSIDAD DESESCOLARIZADA?

Reviewed by Henry T. Ingle

Authors: Jairo Arboleda Toro and Manuel Ortega Velasquez

Title: *Qué Es la Universidad Desescolarizada?* Información general.

Published by: Universidad de Antioquia, Facultad de Educación, Centro de Investigaciones Educativas, 1974. 35 pages.

Order from: Proyecto "Universidad Desescolarizada"
Apdo. Aéreo 2772, Medellín, Colombia
Director, Jairo A. Arboleda Toro

This is a report on the Open University system of the University of Antioquia in Colombia. The system uses radio and correspondence materials as well as audio cassettes.

It is called UNIDES — La Universidad Desescolarizada or the "non-academic university." Its objective is that of developing a distance teaching system to provide higher education opportunities to the general public at a reduced cost and emphasizing individualized instructional approaches.

The entire venture is an experimental project of the CIED, Centro de Investigaciones Educativas of the School of Education at the University of Antioquia. The central government, through ICFES, (Instituto Colombiano para el Fomento de la Educación Superior), is financing it.

(Continued from page 6)

THE CASE OF THE IVORY COAST

For a twenty-minute broadcast, approximately one week of preparation was furnished by a team composed of one producer-script writer and one director, plus support staff. Eleven such teams worked simultaneously on different subject areas and different grade levels.

The balance of the report identifies concrete problems observed during the production process. These are examined individually as to their probable causes, visible consequence, and possible means of solution. Typical problems would be: scenario passages too complicated to film with locally obtainable materials; insufficient numbers of TV film directors for the volume of work demanded; delays in shooting due to defective equipment; inaccessibility of ready cash to allow filming expeditions to other parts of the country. The report terminates with recommendations for reorganization of professional staff, more realistic workloads, and smoother handling of out-of-studio filming.

Current and Future Activity

An additional document the evaluation unit has produced is entitled, "Work Program, January 1974 — December 1976." It contains a framework for specific evaluation projects: input evaluation, process evaluation, and output evaluation. It lists the sources from which Ivorian counterpart researchers and research assistants can be tapped. It also presents the external donor agencies and their plans for carrying out their particular portions of the overall evaluation scheme. The document was approved by a 1974 meeting of the "Club d'Abidjan," a semi-annual gathering of all contributing agencies to coordinate their aid in concert with Ivorian priorities.

The work program 1974-76 calls for the following evaluation projects to be performed. The technical and management studies will treat the quality of TV programs produced, task definitions throughout the ETV program, and a general analysis of management in the ETV system. Currently an evaluation report is being circulated in the ETV Project center which maps out the production cycle followed, assesses the volume of work undertaken, and identifies concrete problems observed during the production process.

In the economic sector, a computer-based student flow model is being developed, designed to aid in projecting costs of ETV expansion according to various hypotheses of program development. The cost analysts plan to continue their research into cost reduction options, and to expand their general study of costs from the elementary school sector to secondary and out-of-school education.

The evaluation of the nonformal education component will treat several aspects of the program reaching urban and rural adults and school leavers: one, a needs assessment to determine felt needs in the population which could be met by a rural education TV program; two, an administrative history tracing the organizational development of the multi-ministerial rural development effort; three, a study of the impact observed in audiences with regard to comprehension, discussion, follow-up, and eventual behavior change. A report released to ETV project staff early in 1975 describes how out-of-school TV programs were received in four villages during the first year of adult telecasts.

Elementary school educational evaluation over the next few years will be conducted in seven areas: cognitive and psychomotor development; verbal teacher/pupil interaction analysis; teacher opinions and attitudes; pupil achievement in French and mathematics; and student teacher achievement in French and mathematics. As the above sectors are planned, the technical and management areas represent the evaluators' appraisals of the situation, its major problems and suggestions for improvement. The educational evaluation — both in and out-of-school — involves, in addition to assessment and recommendations, training workshops for local research assistants as well as overseas graduate training for a selected number of host country researchers.

Comparative studies between TV and non-TV schools will not be systematically carried out due to the rapid disappearance of "traditional" schools and due to the Ivorian attitude that the ETV program is not experimental in its large options: it is here to stay.

ICIT

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